

A comparison of market needs to the species and quality composition of the U.S. hardwood resource

R.J. Bush, P.A. Araman, and J. Muench, Jr.

Assistant Professor, Department of Wood Science and Forest Products, Virginia Tech, Blacksburg, Virginia

Project Leader, USDA, Forest Service, Southeastern Forest Experiment Station, Blacksburg, Virginia

Senior Research Scientist, Department of Wood Science and Forest Products, Virginia Tech, Blacksburg, Virginia

Abstract

The production and consumption of hardwood lumber increased during the 1980s and is predicted to remain at high levels during the 1990s. In recent years, annual growth has exceeded annual removals on hardwood forests. However, much of the growth has been in species that are relatively underutilized in high value markets such as furniture and cabinets. Volumes of the most popular species, the oaks, experienced smaller increases. Sawtimber inventories of select species are skewed toward lower grade logs. The potential grade output from this material is skewed toward lower grade lumber (No. 2 Common and below). Potential differences between the demand and availability of the more popular species can be mitigated by species substitution. The relatively low quality of much of the resource and the growth in demand for higher quality lumber will necessitate continued markets for lower grade lumber and perhaps changes in consumer acceptance or technology.

Introduction

Pressures on the U.S. hardwood resource have increased in recent years. United States hardwood lumber production grew during the 1980s, reaching a high of 11.4 billion board feet in 1988 (7). Production remained in the 10 to 11 billion board feet range during the late 1980s and is expected to remain there through most of the early 1990s. In spite of increased production, hardwood sawtimber volumes increased during the 1980s (Table 1). This paper examines the species and grade composition of the resource in comparison to the needs of several markets for hardwood lumber. Lumber is only one of the uses of hardwoods; during 1988 an estimated 75 million cubic feet of hardwoods were used for plywood/veneer and 1.9 billion cubic

feet were used for pulp products (5). However, lumber is an extremely important use of the hardwood resource and one that accounts for many high value products.

Market needs

Recent studies have helped to define the species and grade needs of various markets for hardwood lumber products (2,3). Bush et al. (2) studied large companies in the millwork, dimension parts, flooring, furniture, and cabinet industries, a group that accounts for an estimated 37 percent of eastern hardwood lumber consumption by volume and a larger portion by value. Red oak was the most demanded species group within these industries, accounting for 37 percent of total purchases (by volume) and 49 percent of lumber use in both the flooring and cabinet industries. The white oak group accounted for 23 percent of wood purchases by flooring manufacturers but less than 10 percent in each of the remaining market segments. Yellow poplar accounted for 24 percent of wood use in the millwork-segment and 16 percent in the furniture segment. Imported species held a small (less than 1096) but significant share in the furniture, millwork, and flooring markets for hardwood lumber.

Lumber demand in the furniture, dimension, and cabinet markets was concentrated in the No. 1 and No. 2 Common grades (2). The millwork market used a large amount of high grade material (56% Select and better). The majority of purchases by flooring manufacturers (53%) were No. 2 Common lumber.

Forbes et al. (3) studied companies of all sizes in the wood household, upholstered, and office furniture segments of the furniture industry. They found that 30 percent of lumber purchases were red oak and 16 percent were white oak. Purchases of oak were pre-

dicted to increase relative to other species. Total hardwood lumber use by the furniture industry was also predicted to increase.

Species and grade use in the pallet industry has been studied by McCurdy et al. (4). The Forestry Sciences Laboratory (Princeton, West Virginia) has studied lumber exports. The export market consumes oak, hard maple, and yellow poplar in high grades (70% FAS, FAS1F or Select). However, approximately 60 percent of U.S. hardwood lumber exports are select oaks (1). Pallet manufacturers consume large amounts of oak and mixed hardwood lumber (73% of total use) in No. 2 Common and lower grades as well as low grade cants.

The resource

Hardwood sawtimber inventories on U.S. timberlands are increasing (Table 1). However, heavy de-

Table 1. — Hardwood sawtimber on U.S. timberlands: growth in selected species (1).

Species	Percent change, 1977-1987
oaks	+35
Yellow poplar	+54
Hard maple	+38
Soft maple	+66
Hickory	+22
Yellow birch	+11
Sweetgum	+22
Beech	+23
Tupelo and blackgum	+14
Ash	+43
Basswood	+42
Black walnut	+60
Black cherry	+75
Red alder	+18
Cottonwood and aspen	+46
Other species	+11
All species	+33

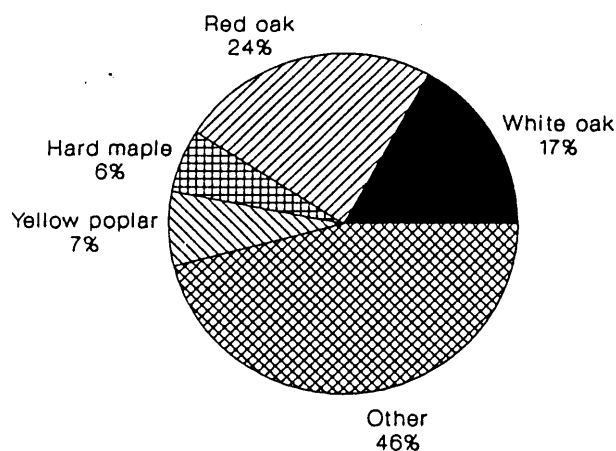


Figure 1. — Eastern U.S. sawtimber by species (6).

mand for some species has slowed volume increases in recent years (1). The existing resource includes significant quantities of oaks (species which account for much of the market demand) as well as large quantities of hard maple and yellow poplar (Fig. 1). Of course, not all of the resource is available; in the southeast, less than 40 percent is estimated to be available to harvest (1).

Approximately 60 percent of the existing select species volume is in relatively low grade 3 and 4 logs (Fig. 2). The potential grade output from the resource is skewed toward No. 2 Common and lower grade lumber (65% of total output). In lumber markets other than pallets and flooring, the demand for these grades is relatively small.

The greatest potential problem in supply appears to be in the oak species. Demand for oaks is strong and sawtimber volume increases have been near the average for all species. Ash, alder, and walnut are also in high demand relative to the proportion of volume they represent. Species that are underutilized for lumber include yellow poplar, the maples, beech, birch, and hickory. Potential differences between demand and availability of the more popular species can be mitigated through species substitution. This process already occurs as a result of differences in price, availability, and consumer tastes. The relatively low quality of much of the resource and the growth in demand

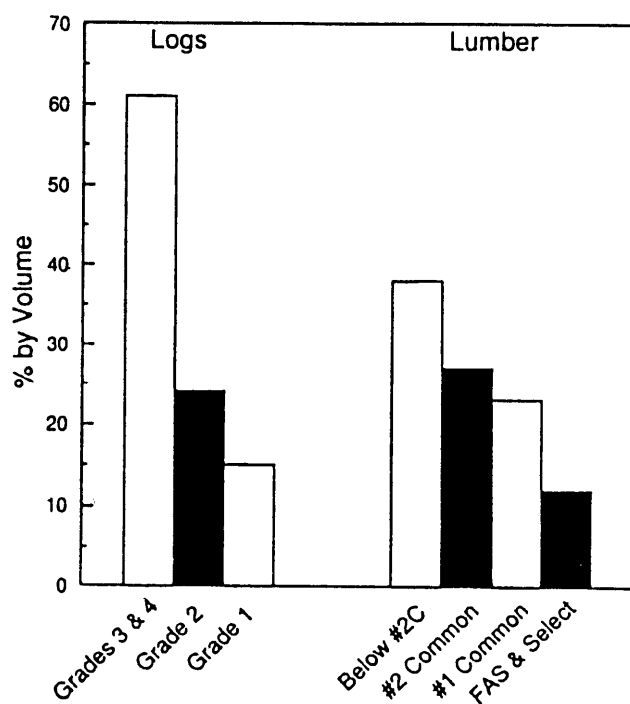


Figure 2. — Sawtimber log grades and lumber grade potential for select eastern hardwoods (1).

for higher quality lumber will require continued growth in markets for lower grade material. These markets are essential for the profitable operation of many sawmills (1,7). Eventually, changes in consumer acceptance of products from low grade material and lesser used species or changes in processing technology may be needed.

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